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embodiment offers the advantage that the cathode is completely held within flowing protective gas and is therefore protected against entry of particles from the silicon vapor cloud. This extremely effectively prevents poisoning of the cathode surface by evaporated Si oxides, and avoiding the surface being partly covered with an insulating layer, something which would prevent striking the arc and, in the long run, would also substantially limit the use of the cathode and working life. Owing to the supply of protective gas, an area with a higher partial pressure is produced in front of the cathode surface, the protective gas emerging out through the baffle opening into the process space. The quantity of gas employed per cathode is between the 5 sccm and 50 sccm, and preferably amounts to 10 sccm.

In the Claims:

Please amend claims 1 and 2 as follows:

1. (Amended) An electrode arrangement for the plasma-aided coating of a substrate with a layer, comprising:

at least a first and a second material component which produces a plasma discharge;

an anode arrangement which defines said first material component at an anode material surface for evaporation;

a cathode arrangement which defines said second material component at a cathode material surface, said cathode material surface being constituted by an evaporation-active part supporting the plasma discharge and an evaporation-inactive part not supporting the plasma discharge;

a gas supply for supplying protective gas in front of the cathode material surface to the evaporation-active part of the cathode material surface; and

a baffle arrangement exposing said evaporation-active part at a baffle opening for the plasma discharge and shading of the evaporation-inactive part correspondingly from the plasma discharge;

wherein said protective gas is so introduced into an intermediate space between the baffle arrangement and the cathode material surface that said supplied protective gas escapes